

**INFORMATION CITED BY APPLICANTS THAT MAY BE MATERIAL  
TO THE PROSECUTION OF THE SUBJECT APPLICATION**

Applicants: C.F. Konzak et al.

Attorney Docket No. KONC118530

Title: METHODS FOR GENERATING DOUBLED HAPLOID PLANTS

11002 U.S. PTO  
10/042932  
01/08/02

**U.S. PATENT DOCUMENTS**

| *Examiner<br>Initial | ID | Document<br>No. | Date       | Name            |
|----------------------|----|-----------------|------------|-----------------|
| <u>Amc</u>           | U1 | 5,049,503       | 09/17/1991 | Swanson et al.  |
|                      | U2 | 5,272,072       | 12/21/1993 | Kaneko et al.   |
|                      | U3 | 5,322,789       | 06/21/1994 | Genovesi et al. |
|                      | U4 | 5,445,961       | 08/29/1995 | Genovesi et al. |
| <u>Amc</u>           | U5 | 5,900,375       | 05/04/1999 | Simmonds et al. |

**FOREIGN PATENT DOCUMENTS**

None

**OTHER INFORMATION**

(Including Author, Title, Date, Pertinent Pages, Etc.)

| *Examiner<br>Initial | ID | Document Information  |
|----------------------|----|---|
| <u>Amc</u>           | O1 | Armstrong, T.A., S.G. Metz and P.N. Mascia, "Two Regeneration Systems for the Production of Haploid Plants from Wheat Anther Culture," <i>Plant Science</i> , Vol. 51, pp. 231-237 (1987).  |
|                      | O2 | Ball, Shane T., HuaPing Zhou and Calvin F. Konzak, "Influence of 2,4-D, IAA, and duration of callus induction in anther cultures of spring wheat," <i>Plant Science</i> , Vol. 90, pp. 195-200 (1993).  |
|                      | O3 | Ball, S.T., H. Zhou, and C.F. Konzak, "Sucrose Concentration and Its Relationship to Anther Culture in Wheat," <i>Crop Science</i> , Vol. 32, pp. 149-154 (1992).   |
|                      | O4 | Bennett, Michael D., and W. Glyn Hughes, "Additional Mitosis in Wheat Pollen induced by Ethrel," <i>Nature</i> , Vol. 240, pp. 566-568 (Dec. 1972).   |
| <u>Amc</u>           | O5 | Bin, Huang, "Ultrastructural Aspects of Pollen Embryogenesis in <i>Hordeum</i> , <i>Triticum</i> and <i>Paeonia</i> ," in Hu, H. and H.Y. Yang (Eds.) <i>Haploids of Higher Plants in Vitro</i> , , China Academic Publishers, Beijing (1986) pp. 91-117. |

- Amr
- O6 Chih-ching, Chu, "The N<sub>6</sub> Medium and its Applications to Anther Culture of Cereal Crops," *In Proceedings of Symposium on Plant Tissue Culture*, Sci. Press, Peking, China, pp. 43-50 (1978).
- O7 Chu, C.C. and R.D. Hill, "An improved anther culture method for obtaining higher frequency of pollen embryoids in *Triticum aestivum* L.," *Plant Science*, Vol. 55, pp. 175-181 (1988).
- O8 Chu, C.C., R.D. Hill and A.L. Brule-Babel, "High Frequency of Pollen Embryoid Formation and Plant Regeneration *In Triticum aestivum* L. on Monosaccharide Containing Media," *Plant Science*, Vol. 66, pp. 255-262 (1990).
- O9 Dale, Philip J., "Pollen Dimorphism and Anther Culture in Barley," *Planta*, Vol. 127, pp. 213-220 (1975).
- O10 Darvey, N.L., "Doubled haploid technology: An interactive model for germplasm enhancement," *Proceedings of the 9th International Wheat Genetics Symposium, Keynote Addresses and Oral Presentations*, Vol. 1, Sect. 5 - Transgenics (August 2-7, 1998).
- O11 De Buyser, J., P. Touraine, A. Ambroise and E. Picard, "Induction of androgenetic embryos and chlorophyllian plants of *Triticum aestivum* from isolated microspore culture," *Proceedings of the 9th International Wheat Genetics Symposium, Poster Presentations*, Vol. 3, Sect. 5 - Transgenics (August 2-7, 1998).
- O12 Devaux, P., "Comparison of Anther Culture and the *Hordeum bulbosum* Method for the Production of Doubled Haploids in Winter Barley," *Plant Breeding*, Vol. 100, pp. 181-187 (1988).
- O13 Falconer, Marcia M., and R.W. Seagull, "Amiprophos-methyl (APM): A Rapid, Reversible, Anti-microtubule Agent for Plant Cell Cultures," *Protoplasma*, Vol. 136, pp. 118-124 (1987).
- O14 Gustafson, Vicki D., P. Stephen Baenziger, Martha S. Wright, Walter W. Stroup and Yang Yen, "Isolated wheat microspore culture," *Plant Cell, Tissue and Organ Culture*, Vol. 42, pp. 207-213 (1995).
- O15 Heberle-Bors, Erwin, "In vitro pollen embryogenesis in *Nicotiana tabacum* L. and its relation to pollen sterility, sex balance, and floral induction of the pollen donor plants," *Planta*, Vol. 156, pp. 396-401 (1982).
- O16 Heberle-Bors, Erwin, "Induction of embryogenic pollen grains in situ and subsequent in vitro pollen embryogenesis in *Nicotiana tabacum* by treatments of the pollen donor plants with feminizing agents," *Physiol. Plant.*, Vol. 59, pp. 67-72 (1983).
- O17 Heberle-Bors, Erwin, "On the time of embryogenic pollen grain induction during sexual development of *Nicotiana tabacum* L. plants," *Planta*, Vol. 156, pp. 402-406 (1982).
- Amr
- O18 Heberle-Bors, E., "In vitro haploid formation from pollen: a critical review," *Theoretical and Applied Genetics*, Vol. 71, pp. 361-374 (1985).

- Amc*
- O19 Henry, Y., and J. de Buyser, "Effect of the 1B/1R translocation on anther culture ability in wheat (*Triticum aestivum* L.), *Plant Cell Reports*, Vol. 4, pp. 307-310 (1985).
- O20 <http://tdg.uofuelph.ca/CRSC/cereals/culture.htm>, "Development of a Functional Microspore Culture System for Barley (*Hordeum vulgare* L.) Cultivars," available at least as early as 1997.
- O21 Hu, T.C., A. Ziauddin, E. Simion, and K.J. Kasha, "Isolated Microspore Culture of Wheat (*Triticum aestivum* L.) in a Defined Media," *In Vitro Cell. Dev. Biol.*, Vol. 31, pp. 79-83 (Apr. 1995).
- O22 Hu, T., and K.J. Kasha, "Improvement of isolated microspore culture of wheat (*Triticum aestivum* L.) through ovary co-culture," *Plant Cell Reports*, Vol. 16, pp. 520-525 (1997).
- O23 Hu, T.C., A. Ziauddin, E. Simion, and K.J. Kasha, "Isolated Microspore Culture of Wheat (*Triticum aestivum* L.) in a Defined Media," *In Vitro Cell. Dev. Biol.*, Vol. 31, pp. 79-83 (Apr. 1995).
- O24 Jähne, Alwine, and Horst Lörz, "Cereal microspore culture," *Plant Science*, Vol. 109, pp. 1-12 (1995).
- O25 Junwen, Ouyang, "Induction of Pollen Plants in *Triticum aestivum*," in Hu, H. and H.Y. Yang (Eds.) *Haploids of Higher Plants in Vitro*, , China Academic Publishers, Beijing (1986) pp. 26-41.
- O26 Kasha, K.J., T.C. Hu, E. Simion and R. Oro, "Cytological development of wheat microspores in culture," *Proceedings of the 9th International Wheat Genetics Symposium, Keynote Addresses and Oral Presentations*, Vol. 1, Sect. 5 - Transgenics (August 2-7 1998).
- O27 Kasha, K.J., A. Ziauddin and U.-H. Cho, "Haploids in Cereal Improvement: Anther and Microspore Culture," *Gene Manipulation in Plant Improvement II*, Crop Science Dept., Univ. of Guelph, Ontario, Canada, pp. 213-230 (1990)
- O28 Köhler, F., and G. Wenzel, "Regeneration of Isolated Barley Microspores in Conditioned Media and Trials to Characterize the Responsible Factor," *J. Plant Physiol.*, Vol. 121, pp. 181-191 (1985).
- O29 Kyo, M., and H. Harada, "Control of the developmental pathway of tobacco pollen in vitro," *Planta*, Vol. 168, pp. 427-432 (1986).
- O30 Mejza, Stephen J., Vincent Morgant, Denise E. DiBona, and James R. Wong, "Plant regeneration from isolated microspores of *Triticum aestivum*," *Plant Cell Reports*, Vol. 12, pp. 149-153 (1993).
- O31 Morejohn, L.C., T.E. Bureau, J. Mole-Bajer, A.S. Bajer and D.E. Fosket, "Oryzalin, a dinitroaniline herbicide, binds to plant tubulin and inhibits microtubule polymerization in vitro," *Planta*, Vol. 172, pp. 252-264 (1987).
- Amc*
- O32 Picard, E., C. Hours, S. Grégoire, T.H. Phan and J.P. Meunier, "Significant improvement of androgenetic haploid and doubled haploid induction from wheat plants treated with a chemical hybridization agent," *Theoretical and Applied Genetics*, Vol. 74, pp. 289-297 (1987).

- Amc
- O33 Puolimatka, Matti, Sisko Laine and Janos Pauk, "Effect of ovary co-cultivation and culture medium on embryogenesis of directly isolated microspores of wheat," *Cereal Research Communications*, Vol. 24:No. 4, pp. 393-400 (1996).
- O34 Reynolds, Thomas L., and Rebecca L. Crawford, "Changes in abundance of an abscisic acid-responsive, early cysteine-labeled metallothionein transcript during pollen embryogenesis in bread wheat (*Triticum aestivum*), *Plant Molecular Biology*, Vol. 32, pp. 823-829 (1996).
- O35 Touraev, Alisher, Andi Ilham, Oscar Vicente, and Erwin Heberle-Bors, "Stress-induced microspore embryogenesis in tobacco: an optimized system for molecular studies," *Plant Cell Reports*, Vol. 15, pp. 561-565 (1996).
- O36 Touraev, A., A. Indrianto, I. Wratschko, O. Vicente, E. Heberle-Bors, "Efficient microspore embryogenesis in wheat (*Triticum aestivum* L.) induced by starvation at high temperature," *Sex Plant Reprod.*, Vol. 9, pp. 209-215 (1996).
- O37 Tuveesson, Inger Kirstine Due, and Rebecka Charlotte Viktoria Öhlund, "Plant regeneration through culture of isolated microspores of *Triticum aestivum* L.," *Plant Cell, Tissue and Organ Culture*, Vol. 34, pp. 163-167 (1993).
- O38 Vaughn K.C. and L.P. Lehen, Jr. "Mitotic Disrupter Herbicides, " *Weed Science*, 39:450-457, 1991.
- O39 Xie, Jiahua, Mingwei Gao, Qihua Cai, Xiongying Cheng, Yuwei Shen and Zhuqing Liang, "Improved isolated microspore culture efficiency in medium with maltose and optimized growth regulator combination in japonica rice (*Oryza sativa*), *Plant Cell, Tissue and Organ Culture*, Vol. 42, pp. 245-250 (1995).
- O40 Zheng, Y. "The effect of 2,4-D in Pre-culture Media Before the Isolation of Microspores for In-Vitro Culture," Chapter 4 of Ph.D. Thesis, Washington State University (1994).
- O41 Zhou, Huaping, and C.F. Konzak, "Improvement of Anther Culture Methods for Haploid Production in Wheat," *Crop Sci.*, Vol. 29, pp. 817-821 (1989).
- O42 Zhou, Huaping, and Calvin F. Konzak, "Genetic control of green plant regeneration from anther culture of wheat," *Genome*, Vol. 35, pp. 957-961 (Dec. 1992).
- Amc O43 Zhou, H., Y. Zheng and C.F. Konzak, "Osmotic potential of media affecting green plant percentage in wheat anther culture," *Plant Cell Reports*, Vol. 10, pp. 63-66 (1991).

Examiner

Amc

Date Considered

3/5/04

\*Examiner: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.